

### REMARKS

Claims 19 and 20 have been amended to change “object” to “fingerprint.” New claim 21 has been added. Support for the new claim may be found in the specification on page 13, lines 11-26. No new matter has been added. Claims 1, 3-21 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

### OBJECTION TO CLAIM 19

Claim 19 is objected to for the reasons set forth in paragraph 2 on page 2 of the Action. Specifically, regarding claim 19, the Action notes the informality of duplicating label “b)” and mis-labeling resulting therefrom. In response, claim 19 has been amended to remove the letter labels from the claimed limitations. Accordingly, it is respectfully requested that the objection to claim 19 be withdrawn.

### REJECTION OF CLAIMS UNDER 35 U.S.C. 103

#### Rejection of Claim 20 under 35 U.S.C. 103(a) – Bohn Reference

Claim 20 is rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 6 on pages 3 and 4 of the Action. Specifically, claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn et al. (U.S. Pat. No. 6,207,945), which is hereinafter referred to as “Bohn” or “the Bohn reference.”

The rejections under 35 U.S.C. 103(a) are respectfully traversed, at least insofar as applied to the amended claim, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth herein below.

Figure 2 (elements 130, 132 and 280), Column 13, lines 14-45, lines 46-50, lines 65-67, and Column 14, lines 1-2, lines 3-6, lines 10-24 of the Bohn reference are cited as teaching the method for imaging as claimed. It is respectfully submitted that Bohn, whether alone or in combination, fails to teach or suggest the imaging method as claimed. Specifically, Bohn fails to fairly teach or suggest, inter alia, the following claim limitations: “successively capturing a plurality of sub-images by using the imaging sensor array as the fingerprint moves with respect to the imaging sensor array,” as claimed in claim 20.

On page 4, the Action further states “while Bohn discloses the imaging sensor array moving with respect to the object, it would have been obvious to one of ordinary skill in the art to have modified the movement to include the object moving with respect to the imaging sensor array because it is well known in the art and performs the same function of scanning portions of the object.” Applicant strongly disagrees with this position.

It is respectfully submitted that the Bohn reference is neither in the field of the invention nor reasonably pertinent to the specific problem with which the invention is involved. A document scanning application (e.g., a flat-bed or Bohn’s hand-held scanner) is very different from a fingerprint imaging application. For example, the fingerprint imager, as claimed, is configured to image a fingerprint that has a width of about half an inch as a user moves the fingerprint across the imager in a single pass. In contrast, a user drags the hand-held scanner of Bohn across a page in a meandering path to scan text. The scanner of Bohn generates multiple image swaths from the alternating left-to-right and right-to-left passes (see FIG. 1). Because the scan involves multiple passes, the image portions generated by each pass must be combined via “stitching software” (see col. 13, line 65 to col. 14, line 6). Unfortunately, a user’s random movement causes the scanner to generate image data representing scan lines that are typically skewed relative to each other (see col. 6, lines 23-

36). The stitching software requires mechanisms to accurately determine the positions of these skewed lines to accurately replicate the image. Consequently, Bohn requires complex and costly circuits (e.g., positioning processor 150, imaging processor 152, etc.) to perform this “stitching” operation. In sharp contrast, the invention, as claimed, requires only one pass (i.e., no stitching is needed) since the width of the row of sensors is approximately the same as the width of the fingerprint.

Furthermore, whereas the fingerprint is moved relative to the fingerprint imager, as claimed, the imaging device 100 of Bohn is moved relative to the page 200 (col. 6, lines 5-7). Furthermore, whereas the fingerprint imager, as claimed, images the fingerprint one portion at a time (e.g., by a row of pixels that extend substantially the width of the fingerprint), the imaging device of Bohn in sharp contrast follows a meandering path 270 on the surface 216 of page 200 (see FIG. 1, and col. 6, lines 7-8). The left-to-right and then the right-to-left movement is very different from the movement of the fingerprint in one pass across the fingerprint imager as claimed.

Moreover, because there are not enough sensors to image the entire row of the page, the Bohn imager requires movement of the imager along the y-direction of the page, which introduces user error. User error can cause, for example, a pass along the y-direction that is tilted, a pass that generates skew, a pass that duplicates previously scanned information, or a pass that accidentally omits or loses information (e.g., a line of text or part of a line of text), which all require complex processing to correct (col. 6, lines 24-36).

In view of the foregoing, it is respectfully submitted that the Bohn reference fails to teach or suggest the imaging method as claimed. Accordingly, it is respectfully requested that the rejection of claim 20 under 35 U.S.C. 103(a) be withdrawn.

Rejection of Claims 1, 4, 5, 9-12, 15, and 17-19 under 35 U.S.C. 103(a) – Raynal Reference  
in view of Blalock Reference

Claims 1, 4, 5, 9-12, 15, and 17-19 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 7 of the Action on pages 4 to 9. Specifically, claims 1, 4, 5, 9-12, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389), in view of Blalock et al. (U.S. Pat. No. 5,729,008), which is hereinafter referred to as the Blalock reference.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

***I. Blalock Reference Fails To Meet The Requirement That References Be In An Art That Is Analogous To That Of The Invention***

It is well-settled law that the references used in an obviousness rejection must either be in the field of the inventor's endeavor or reasonably pertinent to the specific problem with which the inventor was involved. (See In re Deminski, 796 F. 2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986)). Furthermore, this requirement may be stated differently as the following inquiry: whether the references relied upon by the Examiner are in an art analogous to that of the invention. (See Wang Labs., Inc. v. Toshiba Corp., 26 USPQ 2d 1767, 1773 (Fed. Cir. 1993))

The policy or rationale behind this requirement is explained as follows:

In resolving the question of obviousness under 35 U.S.C. § 103, we presume full knowledge by the inventor of all the prior art in the field of his endeavor. However, with regard to prior art outside the field of his endeavor, we only presume knowledge from those arts reasonably pertinent to the particular problem with which the inventor was involved. The rationale behind this rule precluding rejections based on combination of teachings from references from non-analogous arts is the realization that an inventor could not possibly be aware of every teaching in every art. Thus, we attempt to more closely approximate the reality of

the circumstances surrounding the making of an invention by only presuming knowledge by the inventor of prior art in the field of his endeavor and in analogous arts. The determination that a reference is from a nonanalogous art is therefore two-fold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. In re Wood, 202 USPQ 171, 174 (C.C.P.A. 1979) [emphasis added.]

Moreover, the Federal Circuit has set forth how to determine whether a reference is reasonably pertinent to the particular problem with which the inventor was involved.

Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. . . . A reference is reasonably pertinent if . . . it is one which, because of the matter with which it deals, logically would have commended itself to the inventor's attention in considering his problem. . . . If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, . . . [i]f it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it. In re Clay, 23 USPQ 2d 1058, 1060–61 (Fed. Cir. 1992)

It is respectfully submitted that the Blalock reference is neither in the field of the invention nor reasonably pertinent to the specific problem with which the invention is involved.

***A. Blalock Reference Is Not In The Field Of The Inventor's Endeavor***

The Blalock reference is not in the same field of endeavor as the claimed invention. Furthermore, the Blalock reference is not in the same field of endeavor as the Raynal reference. The Office Action states that Raynal and Blalock are combinable because “they are from the similar problem solving area of capturing an image.” However, it is respectfully submitted that the Action has characterized the field of endeavor at such a high level of abstraction as to make the analogous art requirement meaningless.

Even the Blalock reference itself does not characterize its field of invention as “any image capture application”. Instead, the Bohn reference limits its field of invention to

“position sensing devices” and “a hand-held scanner having a position sensing device integrated into the imaging portion of the hand-held scanner.” In contrast, the invention as claimed is directed to a fingerprint imager (independent claim 1 and claims dependent thereon) and an imager for “imaging a portion of a fingerprint” (claim 19). Also, the different classifications (class and subclass) of the Blalock versus the Raynal reference further support the position that Blalock is not in the same field of endeavor as Raynal and the claimed invention.

Furthermore, whereas the fingerprint imager, as claimed, images the fingerprint in a single pass (e.g., by rows of pixels that extend substantially the width of the fingerprint), the imaging device of Blalock in sharp contrast follows a meandering path 12 along a page 14 that includes multiple left-to-right and then the right-to-left passes. Moreover, since Blalock does not image the entire row of the page, the Blalock imager requires three degrees of freedom, which introduces user error. In this regard, Blalock’s scanning device 10 requires complex processing to account for user error and to stitch together fraction swaths (side-to-side passes across original 14) (col. 4, lines 49-56), which is not needed by the claimed invention.

Furthermore, whereas the fingerprint imager is stationary, and a finger is moved with respect thereto, the Blalock scanner is moved with respect to a stationary image (e.g., a sheet of paper). (see FIG. 1, col. 3, line 66 to col. 4, line 3). Moreover, imaging a finger that is about ½ of an inch wide involves different considerations and requirements than scanning a page of text with a hand-held scanner 10 that follows in a meandering path 12 (see, Blalock, FIGS. 1 & 2, and col. 3, lines 66-67).

The Federal Circuit has warned against characterizing the field of endeavor at an unreasonably broad level:

The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories. Wang Labs., Inc. v. Toshiba Corp., 26 USPQ 2d 1767, 1773 (Fed. Cir. 1993)

Accordingly, it is respectfully requested that the broad range of the Blalock patent asserted by the Action be appropriately narrowed to give reasonable meaning to the analogous art requirement. When appropriately narrowed, it will become evident that the range of the Blalock reference does not cover the invention as claimed (i.e., Blalock is not in the same field of endeavor as the claimed invention).

***B. Blalock Reference Is Not Reasonably Pertinent To The Specific Problem With Which The Inventor Was Involved***

The Blalock reference is not reasonably pertinent to the specific problem with which the inventor was involved. The Office Action states that Raynal and Blalock are combinable because “they are from similar problem solving area of capturing an image.” However, it is respectfully submitted that the Action has once again characterized the problem faced by the Blalock reference and the invention at such a high level of abstraction as to make the analogous art requirement meaningless.

The Blalock reference and the invention are directed to addressing or solving two very different problems. The problems are dictated by the specific applications for the inventions. In other words, the Raynal and Blalock references are very different approaches to very different problems. The Raynal reference is directed to an improved fingerprint imager. In sharp contrast, the Blalock reference is directed to a hand-held scanner, which, as advanced previously, has a set of technical challenges and difficulties that is very different from the challenges involved in capturing fingerprints.

The Federal Circuit has warned against characterizing the specific problem the inventor attempted to solve at an unreasonably broad level:

Wang's SIMMs were designed to provide compact computer memory with minimum size, low cost, easy repairability, and easy expandability. . . . In contrast, the Allen-Bradley patent relates to a memory circuit for a larger, more costly industrial controller. . . . Thus, there is substantial evidence in the record to support a finding that the Allen-Bradley prior art is not reasonably pertinent and is not analogous. Wang Labs., Inc. v. Toshiba Corp., 26 USPQ 2d 1767, 1773 (Fed. Cir. 1993)

Accordingly, it is respectfully requested that the Action's broad characterization of the problem that Blalock attempted to solve be appropriately narrowed to give reasonable meaning to the analogous art requirement. When appropriately narrowed, it will become evident that the problem that Blalock attempts to solve is very different from the problem addressed by the invention as claimed.

## ***II. Missing Motivation to Combine the Raynal Reference with the Blalock Reference***

The Action states, "it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Raynal's fingerprint movement means to include capturing images and determining movement information along a first and second axis as taught by Blalock because replacing a mechanically movable means reduces the maintenance required for the imager."

However, there does not appear to be anything in the cited references that teach or suggest that the Raynal approach requires any more maintenance than a non-mechanical approach. Moreover, as advanced previously, the mechanisms of Blalock add significant complexity and cost to an imager that may not be appropriate for the application of imaging a fingerprint. As advanced previously, Blalock needs accurate position information to stitch together information from multiple passes, whereas the fingerprint imager as claimed, uses a single pass and does not require the complex stitching process. Accordingly, it appears that



the Raynal approach is a complete system that does not require any modification or added complexity.

It is respectfully submitted that the claimed invention has been improperly used as an instruction manual or “template” to piece together the teachings of the Raynal reference and the Blalock reference so that the claimed invention is rendered obvious. For example, on page 5, the Action relies upon a portion of applicant’s specification to support a position that it would have been obvious to combine Raynal with Blalock. This position is strongly contested. The motivation of one of ordinary skill in the art to combine two references cannot be aided or be based upon applicant’s own teachings.

Consequently, it is respectfully submitted that without the teachings of the present invention, the incorporation of a navigation array with an imaging array in a fingerprint imager would not have been obvious. Furthermore, Raynal would not be combined with Blalock by one of ordinary skill in the art because of the differences in the field of invention, differences in the type of problem being solved and the differences in design considerations.

Regarding claim 3, the previously presented arguments against combining Raynal and Blalock are incorporated herein. Moreover, as advanced previously in connection with claim 20, Bohn neither appears to be in the field of the invention nor appears reasonably pertinent to the specific problem with which the invention is involved.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 1, 3, 4, 5, 9-12, 15, and 17-19 patentably distinguish over Raynal in view of Blalock. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Rejection of Claims 13, 14 & 16 under 35 U.S.C. 103(a) – Raynal and Blalock References in  
view of Akizuki Reference

Claims 13, 14 & 16 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 9 of the Action on pages 10 & 11. Specifically, claims 13, 14 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389) and Blalock et al. (U.S. Pat. No. 5,729,008), which is hereinafter referred to as the Blalock reference, and further in view of Akizuki (U.S. Pat. No. 6,360,004), which is hereinafter referred to as the Akizuki reference.

The Akizuki reference is cited for teaching that “it is known to implement a fingerprint sensor as a touch-pad, or a stand-alone unit, wherein the fingerprint imager further comprises a capacitive sensor having a surface along which a finger is moved and an assembly for housing the capacitive sensor.” In particular, col. 2, lines 62-67 and col. 2, lines 17-20 of Akizuki are cited.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

It is respectfully submitted that the Raynal reference, whether alone or in combination with Blalock and Akizuki, fails to teach or suggest “the fingerprint imager is implemented in a stand-alone unit and wherein the fingerprint imager further comprises: a) a capacitive sensor having a surface along which a finger is moved; and b) an assembly for housing the capacitive sensor.” For the reasons advanced previously, which are incorporated herein by reference, Raynal, whether alone or in combination with Blalock, fails to teach or suggest one or more claimed limitations of the independent claims. Akizuki does not remedy the deficiencies of Raynal and Blalock, nor does Akizuki supplement the teachings of Raynal and Blalock in a manner to render the claimed invention obvious.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 13 and 14 patentably distinguish over Raynal in view of Blalock further in view of Akizuki. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Rejection of Claims 6-8 under 35 U.S.C. 103(a) – Raynal and Blalock References in view of Brownlee Reference

Claims 6-8 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 10 of the Action on pages 11-12. Specifically, claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389) and Blalock et al. (U.S. Pat. No. 5,729,008), which is hereinafter referred to as the Blalock reference, and further in view of Brownlee (U.S. Pat. No. 6,282,303), which is hereinafter referred to as the Brownlee reference.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Brownlee reference is cited for teaching the implementation of a fingerprint imager in a stand-alone unit with optics for focusing light onto the surface. For the reasons advanced previously, which are incorporated herein by reference, Raynal, whether alone or in combination with Blalock, fails to teach or suggest one or more claimed limitations of the independent claims. Brownlee does not remedy the deficiencies of Raynal and Blalock, nor does Brownlee supplement the teachings of Raynal and Blalock in a manner to render the claimed invention obvious. Specifically, Raynal, whether alone or in combination with Blalock and Brownlee, fails to teach or suggest, “a) an imaging array having a plurality of sensors arranged along a first axis for capturing a sub-image of the fingerprint at one time;

wherein the fingerprint is moved with respect to the imaging array in a direction that is generally perpendicular to the first axis; and b) a mechanism for determining a change in the position of the fingerprint with respect to time and controlling the image capture of the imaging array," as claimed.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 6-8 patentably distinguish over Raynal in view of Blalock further in view of Brownlee. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

#### Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,



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Eric Ho (RN 39,711)

January 21, 2005  
(Date)